REMARKS

A. BACKGROUND

The present Amendment is in response to the Office Action mailed May 12th, 2009. Claims 1-20 are cancelled and new claims 21-24 are added. Claims 21-24 are now pending for consideration.

Reconsideration of the application is respectfully requested in view of the above amendments to the claims and the following remarks.

Please note that the following remarks are not intended to be an exhaustive enumeration of the distinctions between any cited references and the claimed invention. Rather, the distinctions identified and discussed below are presented solely by way of example to illustrate some of the differences between the claimed invention and the cited references. In addition, Applicant requests that the Examiner carefully review any references discussed below to ensure that Applicant's understanding and discussion of the references, if any, is consistent with the Examiner's understanding.

II. Claim Objections

Claim 11 was objected to under 37 CFR 1.75(c) for failing to further limit the subject matter of a previous claim. Claim 11 is cancelled, which renders the rejection moot.

III. Claim Rejections Under 35 U.S.C. § 103(a)

The Office Action rejects claims 1, 4-7, 10, 11, 14-15 and 19 under 35 U.S.C. § 103(a) as being unpatentable over Inoue (US 4,221,768). Applicant respectfully traverses the rejection because a *prima facie* case of obviousness has not been established for the presently pending claims 21-24, whereby claims 1-20 have been cancelled.

Applicant respectfully asserts that the presently claimed invention is a process that surprisingly and unexpectedly can use REVanadates in preparing a NOx catalyst that has temperature stability and the ability to retain a high catalytic activity even after being aged at a temperature of as high as 750°C. The prior art used a mixture of RE and vanadium oxides to prepare catalysts that sintered and melted at temperatures lower than 750°C, which results in lowered catalytic activity. Thus, the use of REVanadates instead of a mixture of RE and

vanadium oxides provides the surprising and unexpected results of temperature stability and retention of high catalytic activity even after exposure to temperatures as high as 750°C, and the claimed process and resulting NOx catalyst should be considered to be novel and inventive because the catalysts described in Inoue cannot exhibit the thermal stability of the claimed catalysts because of the low sintering and melting temperature of V_2O_5.

Firstly, Applicant respectfully asserts that claims 21 and 22 are patentable over the art of record and these claims will be granted by the EPO in the corresponding EP application number EP20040797861.

Secondly, Applicant respectfully asserts that the Application discloses the subject matter of claims 21-24 on page 4, paragraph 3 of the specification, and entry of claims 21-24 is respectfully requested because such entry does not introduce new matter.

Thirdly, Applicant submits herewith a Declaration of Karl Schermanz, who is an expert in the field. The Declaration includes an Experimental Report that shows the invention solves problems in the field by providing a novel processing method that can produce a catalyst composition that has high activity after aging at a temperature as high as 750°C. All vanadium based catalysts of the prior art are based on V_2O_5 oxides as the active component. That means that these catalysts begin to sinter from 650°C on and are melting at 690°C, due to their melting behavior. Accordingly, a deactivation of the catalyst occurs (See Jan MT et al., Chemical Engineering & Technology, Vol. 30, Nr. 10, 1440-1444, 2007). Accordingly, the process of the presently claimed invention and resulting catalyst is novel and inventive over the prior art by having high catalytic activity after being aged at a temperature of 750°C.

Comparative Example 1 of the Experimental Report in the Declaration is submitted to demonstrate that even very low concentrations of rare earth vanadate present as a dopant do show the catalytic effect. The concentrations of dopant applied corresponds to V contents less than 0.05 % in the catalyst. As can be seen, the catalyst is effective even when the content of the rare earth vanadate is close to zero.

Additionally, the catalyst examples based on REVanadates (e.g., Table 2b of the application) prepared according to the claimed process of claims 21 and 23 of the present application show good efficiency and high activity.

Comparative Example 2 of the Experimental Report in the Declaration is submitted to demonstrate that the technical effect of the invention (e.g., thermal stability of the catalyst) is effectively associated with the presence of rare earth vanadate. Catalysts doped with transition metal based vanadates do loose significant activity after ageing. In contrast, catalysts doped with rare earth vanadates do show an increase of catalytic activity after ageing at 700°C/10 hrs and even more pronounced at 750°C/10 hrs. Such a result is surprising and unexpected.

In accordance with Applicant's understanding, Inoue does not teach or suggest the use of REVanadates for a NOx catalyst. Also, Inoue teaches away from a NO_x conversion catalyst that includes WO_3. A statement by one of the inventors is submitted herewith in the Declaration as Appendix B in order to show that WO_3 is required by the claims of the present invention and is critical and that, surprisingly and unexpectedly, inclusion of WO_3 results in higher NO_x conversion rates at all temperatures when compared to catalysts that do not contain WO_3 (see, e.g., Tables 2 and 3 of Appendix B of the Declaration). In contrast to the currently pending claims 21-24, Applicant respectfully submits that the teachings of Inoue would lead a person of ordinary skill to making a catalyst that includes WO_3 as a critical component. For instance, Example 16 of Table 5 of Inoue shows that a catalyst having 10% WO_3 has a lower NO_x conversion percentage at all temperatures when compared to catalysts containing other metals. In another instance, Example 23 of Table 5 of Inoue shows that a catalyst containing vanadium and WO_3 performed no better than other catalysts containing vanadium in combination with other metals. Based on these results reported in Inoue, Applicants respectfully submit that a person having ordinary skill in the art would reasonably conclude that WO_3 is either of no value or is detrimental to a NO_x conversion catalyst. Because Inoue teaches away from such a combination, a person of ordinary skill in the art would not be motivated to modify the teaching of Inoue in order to make a NO_x catalyst under the presently claimed process of claims 21 or 23.

In view of the foregoing, Applicant respectfully asserts that Inoue does not teach or suggest each and every element of the presently pending claims 21-24. Specifically, Inoue does not teach or suggest preparing a NOx catalyst to include "solid support containing TiO_2 in an amount of at least 70 wt.-%, WO_3 in an amount of 5-20 wt.-%" and "a vanadate (REVO4) of at least one rare earth metal selected from the group of Y, Ce, Pr, Nd, Sm, Gd, Tb, Dy, Er and Yb,"

as recited in claims 21 and 23. Thus, Inoue does not teach or suggest each and every element of the presently pending claims.

Moreover, there is no valid reason to change the teachings of Inoue in order to arrive at the presently claimed invention. Applicant respectfully asserts that the teaching of vanadium oxides of Inoue and the lack of teaching "a vanadate (REVO4) of at least one rare earth metal selected from the group of Y, Ce, Pr, Nd, Sm, Gd, Tb, Dy, Er and Yb" and teaching away from WO_3 shows that one of ordinary skill in the art would not have a valid reason or any motivation to change Inoue in order to arrive at the presently claimed invention

Since the Inoue does each and every element of the presently pending claims, and in fact teaches away from the presently claimed invention, a prima facie case of obviousness has not been established for claims 21-24. Thus, Applicant respectfully requests withdrawal of the rejection under 35 U.S.C. § 103(a), and allowance of claims 21-24.

The Office Action rejects claims 2-3, 8-9, 12-13, and 16-18 under 35 U.S.C. § 103(a) as being unpatentable over Inoue (US 4,221,768) in view of Wu (US 2002/0141921). Applicant respectfully traverses the rejection because a *prima facie* case of obviousness has not been established for the presently pending claims 21-24, whereby claims 1-20 have been cancelled.

Applicant respectfully asserts that claims 21 and 23 are similar to previously pending claim 7, which claim 7 was not rejected under the combination of Inoue and Wu. Thus, the Office Action rejection is evidence that the combination of Inoue and Wu do not teach or suggest the presently claimed invention.

In accordance with Applicant's understanding, Wu does not teach a vanadate (REVO4) of at least one rare earth metal selected from the group of Y, Ce, Pr, Nd, Sm, Gd, Tb, Dy, Er and Yb.

Additionally, the foregoing remarks regarding Inoue are incorporated into this remark. As such, Wu does not cure the deficiencies of Inoue by not teaching or suggesting preparing a NOx catalyst to include "solid support containing TiO_2 in an amount of at least 70 wt.-%, WO_3 in an amount of 5-20 wt.-%" and "a vanadate (REVO4) of at least one rare earth metal selected from the group of Y, Ce, Pr, Nd, Sm, Gd, Tb, Dy, Er and Yb," as recited in claims 21 and 23. Thus, the combination of Inoue and Wu does not teach or suggest each and every element of the presently pending claims.

Since the combination of Inoue and Wu does each and every element of the presently pending claims, and in fact teaches away from the presently claimed invention, a prima facie case of obviousness has not been established for claims 21-24. Thus, Applicant respectfully requests withdrawal of the rejection under 35 U.S.C. § 103(a), and allowance of claims 21-24.

Conclusion

In the event that the Examiner finds any remaining impediment to a prompt allowance of this application that may be clarified through a telephone interview, the Examiner is respectfully requested to contact the undersigned attorney.

The Commissioner is hereby authorized to charge payment of any of the following fees that may be applicable to this communication, or credit any overpayment, to **Deposit Account No. 23-3178**: (1) any filing fees required under 37 CFR § 1.16; (2) any patent application and reexamination processing fees under 37 CFR § 1.17; and/or (3) any post issuance fees under 37 CFR § 1.20. In addition, if any additional extension of time is required, which has not otherwise been requested, please consider this a petition therefore and charge any additional fees that may be required to **Deposit Account No. 23-3178**.

Dated this 9th day of November, 2009

Respectfully submitted,

/Jonathan M. Benns, Reg. #53983/

JONATHAN M. BENNS
Registration No. 53,983
Attorney for Applicant
Customer No. 022913

WORKMAN NYDEGGER
1000 Eagle Gate Tower
60 East South Temple
Salt Lake City, UT 84111
Phone: 801-533-9800
Fax: 801-328-1707

JMB:cmc
2592899_1.DOC